

SWBAT

Connect work and energy

Sep 4-7:31 AM

BACK OF NOTEBOOK:

"PHYSICS CODE WORDS"

MAGNITUDE: SIZE, HOW BIG

VECTORS HAVE MAG. & DIRECTION

* HORIZONTAL: SIDEWAYS, LEFT/RIGHT, X-DIRECTION

VERTICAL: UP/DOWN, Y-DIRECTION
"VERY TALL"

AT REST: VELOCITY = 0

CONSTANT SPEED/VELOCITY: BALANCED FORCES,
NET FORCE = 0

Σ : "SIGMA", SUM, TOTAL ACCELERATION = 0
(+ & -) "NET"

NORMAL: SUPPORT FORCE, ON A SURFACE
→ PERPENDICULAR

TENSION: FORCE FROM A ROPE

Mar 30-9:46 AM

What we should have solid:

Memorize our ^{8 12} vocab cards, units, vector or not, definition, formula

Be able to answer distance vs displacement questions

Be able to make measurements of real-life motion. Know what is likely to make timing things difficult and how to get more reliable timing results

Be able to convert between miles and meters, between hours, minutes, and seconds

Be able to calculate speed = dist/time and velocity = disp/time

Know what all of the symbols in the UAM equations stand for and mean

Be able to turn a UAM word problem into a list of knowns and unknowns

Be able to pick the equation with those 4 things in it

Be able to put the knowns into that equation

(Be able to solve for the unknown)

→ PROJECTILES: v_x IS CONSTANT; $a_y = -9.81 \text{ m/s}^2$ ^{v_y CHANGES} PG 42

PG 43 TIME, Δt , CONNECTS x & y
PG 53 1ST LAW

PG 49 VECTORS INTO x & y , ADD VECTORS
SOH-CAH-TOA

PG 59 DIFFERENCE BETWEEN MASS & WEIGHT

PG 61 NET FORCE

PG 63 FREE BODY DIAGRAMS

PG 70 $F_f = \mu \cdot N$

$$F = m \cdot a$$

QW every day to review - gather responses to front board.

Dec 4-9:15 AM

Welcome!!!

SECA CP Physics
Tuesday 19 April 2016



H. Leslie Grebe
Room C-244

Centering
(quote)

- Show me SchoolView if you want phone in class...

Hmwk for **Wed 4/20**: Improve 3 units in
EdReady

Opening Activity: Quick Write

What does Potential Energy
depend on? Kinetic Energy?



Who seeks shall find. -Sophocles

courses.district287.org
PHYSICS READINESS - GREBE
LEARNING PATH

Sep 7-7:04 AM

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Sep 5-9:09 AM

WORK IS WHEN A FORCE CAUSES A DISPLACEMENT.

Pg 83: Work and Energy essentials

How much of a force "causes" the displacement? RIGHT 5 m.

$\rightarrow 10 \text{ N}$

$$W = F \cdot d \cdot \cos 0^\circ$$

$$= 10 \text{ N} \cdot 5 \text{ m}$$

$$= 50 \text{ J RIGHT}$$

10 N
 20°
 $F \cdot \cos 20^\circ$

$$W = F \cdot d \cdot \cos \theta$$

$$= 10 \text{ N} \cdot 5 \text{ m} \cdot \cos 20^\circ$$

$$= 47 \text{ J}$$

$F_{\text{fric}} = 5 \text{ N}$

$$W = F \cdot d \cdot \cos \theta$$

$$= 5 \text{ N} \cdot 5 \text{ m} \cdot \cos 180^\circ = -25 \text{ J}$$

$\cos \theta$ ANGLE BETWEEN F & d

What do GPE & KE depend on?

GPE: GRAVITATIONAL POTENTIAL ENERGY (P_E , P_{E_g})
 $GPE = m \cdot g \cdot h$
 m : mass (kg)
 g : acc of gravity, 9.81 m/s^2
 h : height (m)

KE: KINETIC ENERGY, moving, SPEED (v)
 $KE = \frac{1}{2} \cdot m \cdot v^2$
 m : mass (kg)
 v : velocity (m/s)

Conservation of energy:
IN AN ISOLATED SYSTEM TOTAL ENERGY STAYS THE SAME, JUST CHANGES FORM, NOT CREATED OR DESTROYED
 UNLESS WORK IS DONE TOTAL @ TOP = TOTAL @ BOTTOM

So if a rock falls 5m, how fast will it be going?

$GPE_{\text{top}} = m \cdot g \cdot h = m \cdot 9.81 \cdot 5 \text{ m}$

$GPE_{\text{bot}} = 0 \text{ J}$

$KE_{\text{top}} = 0 \text{ J}$

$KE_{\text{bot}} = \frac{1}{2} \cdot m \cdot v^2$

$$GPE_{\text{top}} + KE_{\text{top}} = GPE_{\text{bot}} + KE_{\text{bot}}$$

$$m \cdot 9.81 \cdot 5 + 0 = 0 + \frac{1}{2} m v^2$$

$$\cancel{m} \cdot 49.05 \frac{\text{m}^2}{\text{s}^2} = \frac{1}{2} \cancel{m} v^2$$

$$2 \cdot 49.05 \frac{\text{m}^2}{\text{s}^2} = v^2$$

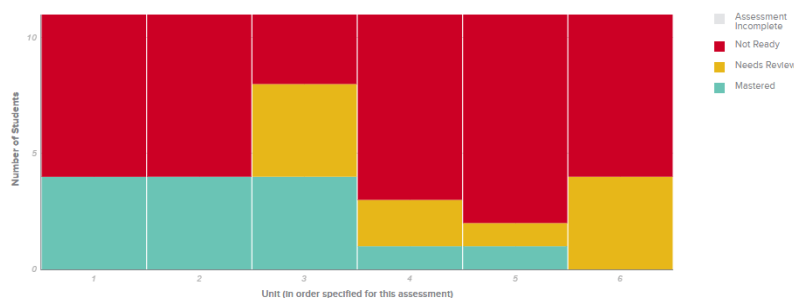
$$\sqrt{98.1 \frac{\text{m}^2}{\text{s}^2}} = \sqrt{v^2}$$

$$9.904 \frac{\text{m}}{\text{s}} \text{ DOWN} = v$$

Apr 19-8:25 AM

Physics Readiness - goals / CHALLENGE?

Unit Breakdown by Mastery ?



Unit Breakdown by Mastery ?



33 → 50

Apr 14-8:33 AM

CLASS CHALLENGE!
DUE WED 4/20

- GET EdReady #2 AVERAGE UP TO 50 (NOW 33)
- AND 18 (3/STUDENT AVERAGE)

REWARD: S'MORES COOKED IN CLASS
& MILK ON MON 4/25

CLASS CODE:
"CAN I GET A YES?" YES!
DOPS / I GOT THIS / SO CLOSE

Apr 15-10:11 AM